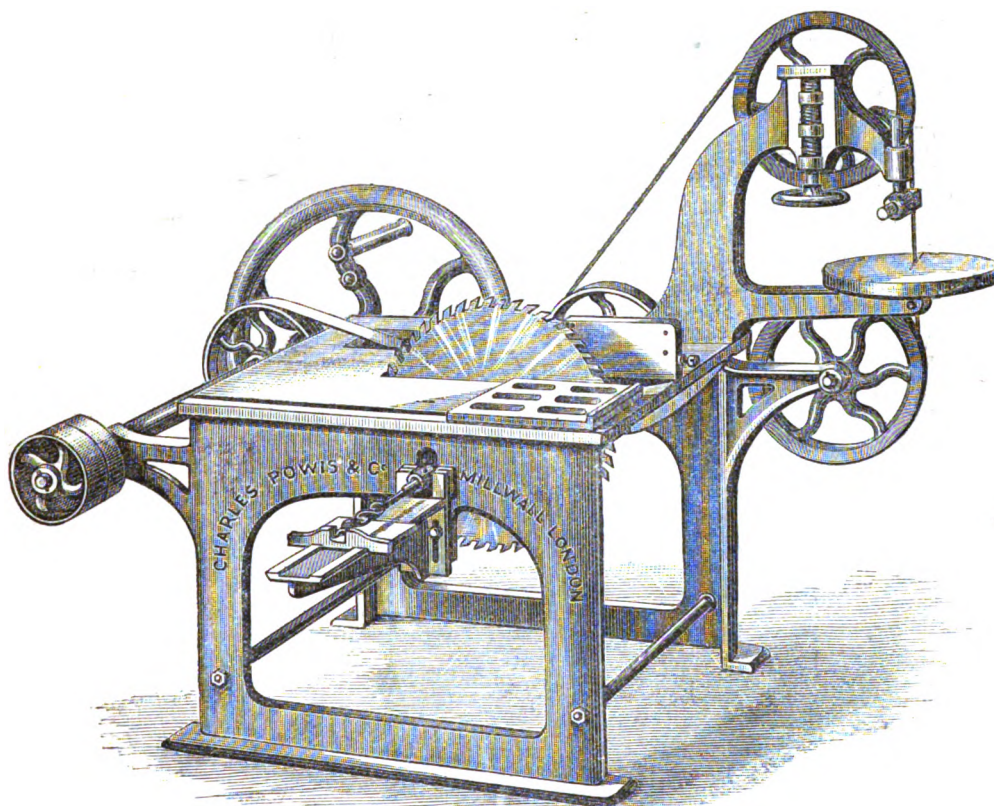


PATENT COMBINED CIRCULAR AND BAND SAWING MACHINE, WITH BORING APPARATUS.



The Machine illustrated above can be worked either by Hand or Steam Power, and is specially adapted for the requirements of Coach Builders, Pattern and Chair Makers, Joiners, and others. It is fitted with a cross-cutting slide, and has a rising and falling spindle for Grooving, Rabbeting, Shouldering, &c. When intended for hand power, the circular saw is arranged to cut 5 inches deep, or with steam power it is made to cut 8 inches deep. The band saw will deep 5 inches, and cut any curved, irregular, or ornamental design; tension is given to the saw by a spring tension apparatus, which effectually prevents breakages. The fence, as well as the band-saw table is made to cant to any angle up to 45 degrees. The spindle for boring will carry augers up to 1½ inch diameter, and the table can be raised or lowered. The great advantages in this Machine are: The band saw being arranged to travel over three pulleys is not so liable to break, and wood of any length or width can be cut with it. The boring apparatus is fixed on the opposite side of fly wheel, so that any length of wood can be bored. The bench being driven by a belt, gives a smooth and easy motion, and cannot get out of order, as when driven by the old method of cog or gear wheels, and the power required is much less.

PRICES.

Complete with Band Saw, Boring Table, and Rising and Falling Spindle.	Without Band Saw.	Without Band Saw and Boring Table.	Without Band Saw, Boring Table, Cross-cutting Slide, and with Fixed Spindle.
£ 26 s. 10 d. 0	£ 22 s. 10 d. 0	£ 21 s. 0 d. 0	£ 18 s. 0 d. 0

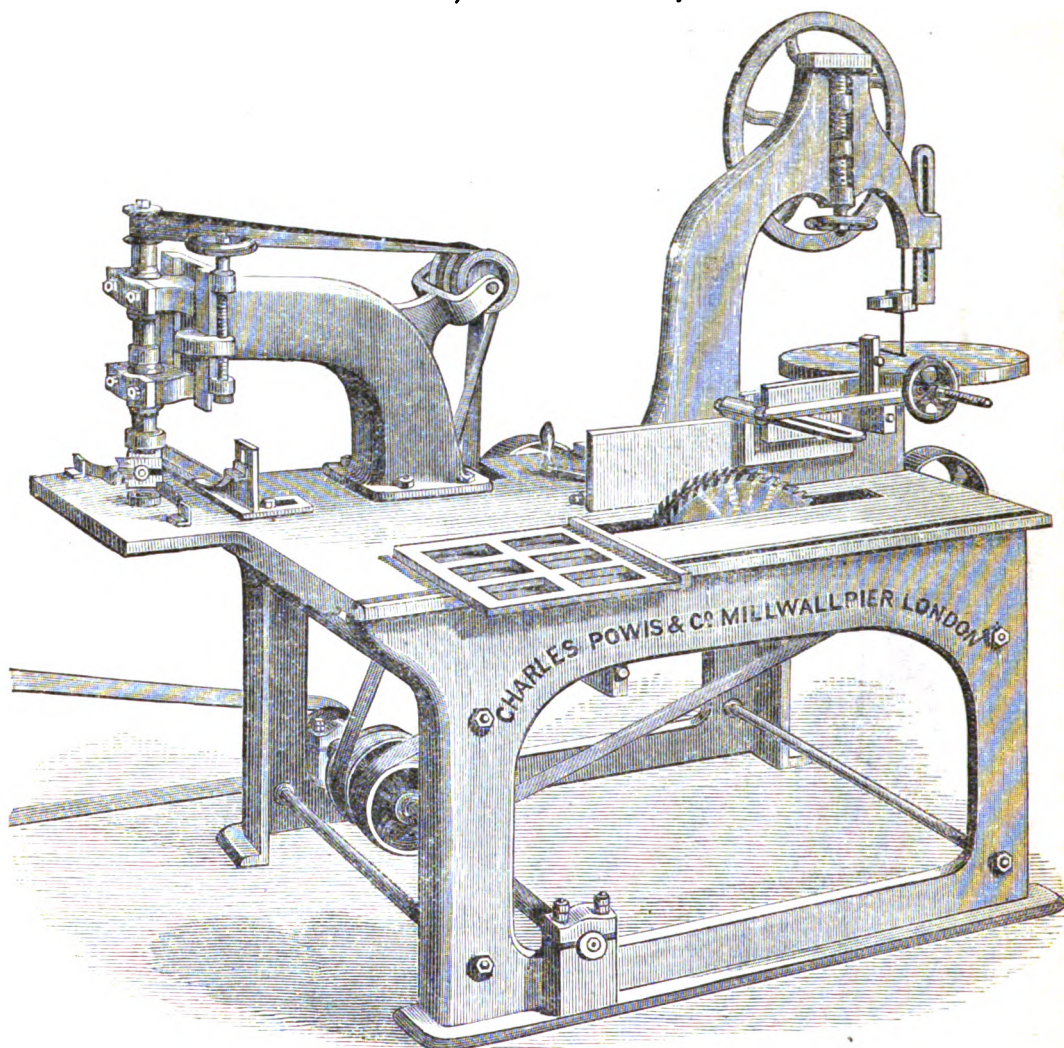
Fast-and-Loose Pulleys for Steam Power, 20s. extra.

CHARLES POWIS AND CO.,
ENGINEERS,

MILLWALL PIER, LONDON, E. CITY OFFICES: 60, GRACECHURCH STREET, E.C.

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PATENT COMBINED CIRCULAR, BAND SAWING, & MOULDING MACHINE.



This Illustration represents an entirely New Machine for performing certain operations in the cutting and converting of Wood for various purposes never previously effected in one Machine, consisting of a Circular Saw, Band Saw, Recessing, Moulding, and Housing Machine. The Circular Saw is mounted so that it is perfectly clear of the other parts of the Machine, and is fitted with a cross-cutting slide, and the spindle has a rising and falling motion, adapting it to fulfil all the purposes usually required for what is known as a Joiner's Bench: viz. Sawing, Rabbeting, Grooving, Tenoning, and Moulding. A long Fence is fitted, having an angular movement, and is carried along the face of the Saw a sufficient distance to allow the Tenoning Apparatus to travel the distance necessary to make the Tenon; and for which purpose two Saws are used, as illustrated; or the Tenon may be made at one operation by using our patented Disc-Cutters. The Band Saw is fixed in such a position as to be entirely free, and wood of any length may be cut into any curved, irregular, or ornamental design; it is driven by a countershaft self-contained in the Machine, whereby its motion is independent of any other part, and it is fitted with our Patent Tension Apparatus to secure equal tension of the Saw at all times. The Recessing is performed at the opposite end of frame-work to that occupied by the Band Saw, and may be employed for a variety of uses, such as making straight or curved Mouldings, Grooving, doing the Housings for Stairs, and every other purpose to which a Recessing Machine can be applied. Simplicity of parts is attained in the combination of these three Machines, together with thorough effectiveness.

Price, including two Saws for Tenoning, one Band Saw, one Cutter Block, and Self-Contained Belts, £70.
Boring Apparatus fitted to ditto, extra, £5.

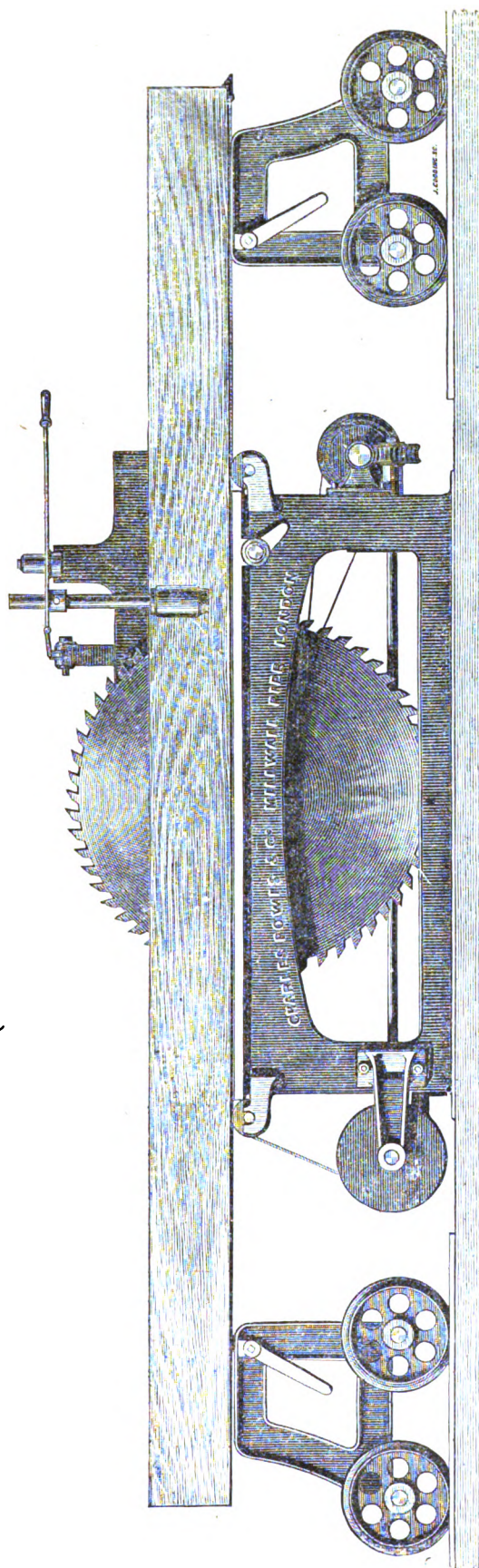
CHARLES POWIS AND CO.,

ENGINEERS,

MILLWALL PIER, LONDON, E. CITY OFFICES: 60, GRACECHURCH STREET, E.C.

SELF-ACTING CIRCULAR-SAW BENCH

(WITH TIMBER CARRIAGES AND RAILS).



This Bench is adapted for cutting planks, deals, and battens, at speeds varying from 15 to 50 feet per minute. The saw spindle is made of the best scrap iron (or steel, if preferred), and runs in long gun-metal bearings, the outer end of which is supported by an **Outside Standard**. A self-acting feed-motion is attached, specially designed with a view to economy in space and efficiency in working. The fence can be set at an angle for cutting feather-edged boards, and always maintains a parallel position with the saw, whatever be the angle at which it may be placed. If the Bench be required for cross-cutting, the fence can be removed with very little trouble. The framing and table-top being cast in one piece, great strength, combined with portability, is obtained. No brick foundation is required, its own weight being sufficient to keep it steady while working. The timber carriages supplied with this Machine have rollers in front, running upon **Eccentric Spindles**, whereby great facility is given in raising the Timber from the bed of the carriage when it is knotty or uneven.

When this Machine is wanted without Timber Carriages and Rails, it is £20 less.

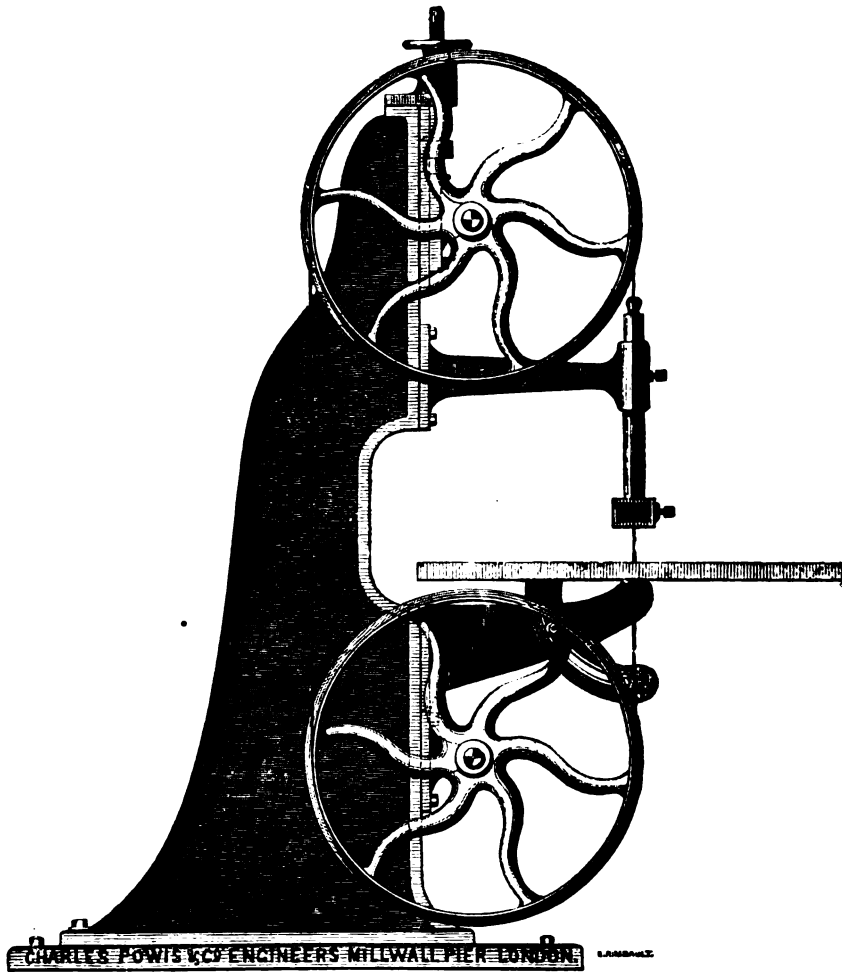
Four Sizes are made, as under:

No.	To take a Saw.	To Cut.	Size of Table.	Driving Pulleys.		Price.	
				12 inches diameter	14 inches diameter	£	s. d.
1	36 inches diameter	15 inches deep	5 feet 9 inches by 2 feet 9 inches	12	14	80	0 0
2	42 "	18 "	6 " 0 " 3 " 0 "	14	16	90	0 0
3	48 "	21 "	7 " 0 " 3 " 3 "	16	16	100	0 0
4	54 "	24 "	7 " 6 " 3 " 6 "	16	16	110	0 0

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ENDLESS BAND SAWING MACHINE.



The above Illustration represents our Endless Band Sawing Machine, which is adapted for cutting wood into any circular, irregular, angular, or straight form. It will be found most useful for Engineers for pattern making, Cabinet Makers, Chair Makers, Wheelwrights, Joiners, and others using sawing machinery.

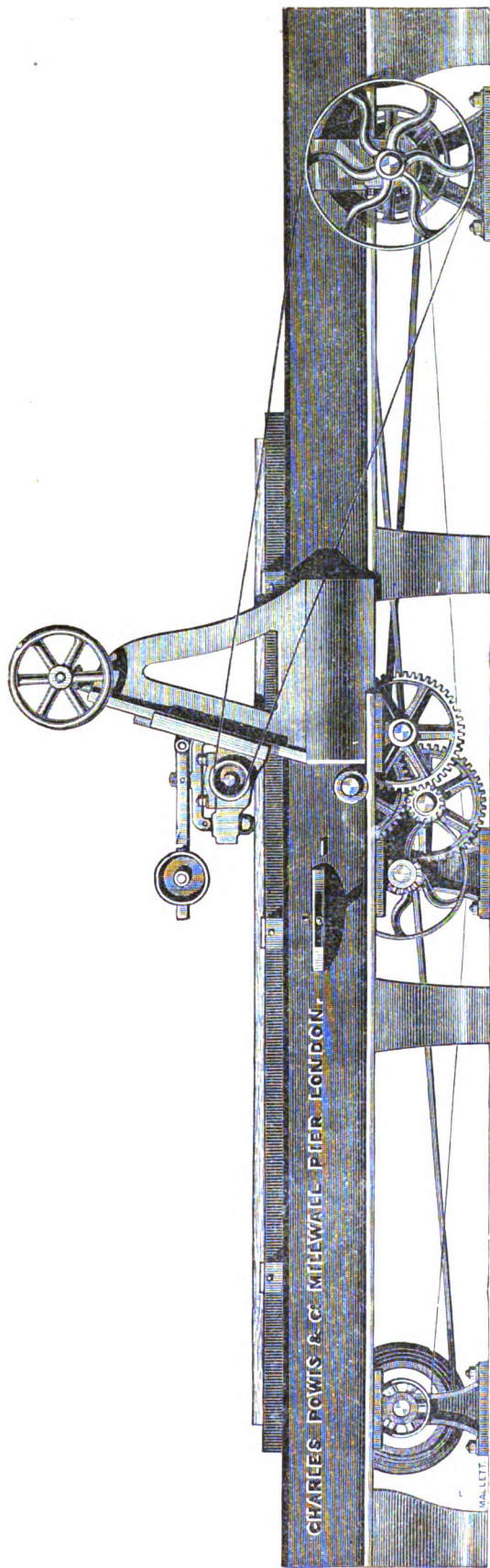
In its design, especial care has been taken to allow as much room as possible between the Saw and framing, thus rendering the Machine capable of cross cutting wide timber. The upright is a cored or hollow casting, and is mounted upon a strong cast-iron base plate, which is usually bolted to the shop floor, thereby dispensing with brickwork foundations. The Saw Pulleys are carefully bored, turned inside and out, and balanced to the greatest nicety; they are then covered with two rings of buff leather, so that the Saw rides easily. Each Machine is fitted with our **Patent Tension Apparatus**, by means of which the top Saw Pulley acts mechanically, taking up the slack of the Saw caused by expansion, and yielding when contraction takes place. The table is made to cant to any angle when required for cutting on the bevel.

	To Cut Wood.	Saw Pulleys.	Driving Pulleys.	Speed of Saw.	Price.
No. 1	12 inches deep	30 inches diameter	12 inches diameter	3000 to 3500 feet	£ 50 0 0
2	15 "	36 "	12 "	per minute	80 0 0

CHARLES POWIS AND CO.,
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MILLWALL PIER, LONDON, E. CITY OFFICES: 60, GRACECHURCH STREET, E.C.

TRYING-UP MACHINE.



This Machine is made expressly for Planing and "Trying-up" Scantlings of either hard or soft wood; and however warped or twisted a piece may be, it leaves the Machine perfectly true, and with a good planed face ready for gluing up. The revolving cutter block and spindle are forged out of the same piece of iron, and the Makers have adopted an improved method of forming the cutter block, which has given very successful results, and by which the tearing action of the revolving cutters in ordinary use, when working cross-grained wood, is entirely obviated. To ensure steadiness in working, and to prevent unequal strains upon the bearings, two driving pulleys are employed upon the revolving adze or cutter block. A rebate, bead, or moulding may be cut upon the wood operated upon at the same time as it is being planed, by fixing irons, of suitable form, upon the cutter block. The travelling bed has a variable feed forward of from 9 feet to 20 feet per minute, and a quick return motion. The bed is self-acting in both directions, and any extra length can be supplied at an extra cost of £4, £4 10s., and £5 per foot.

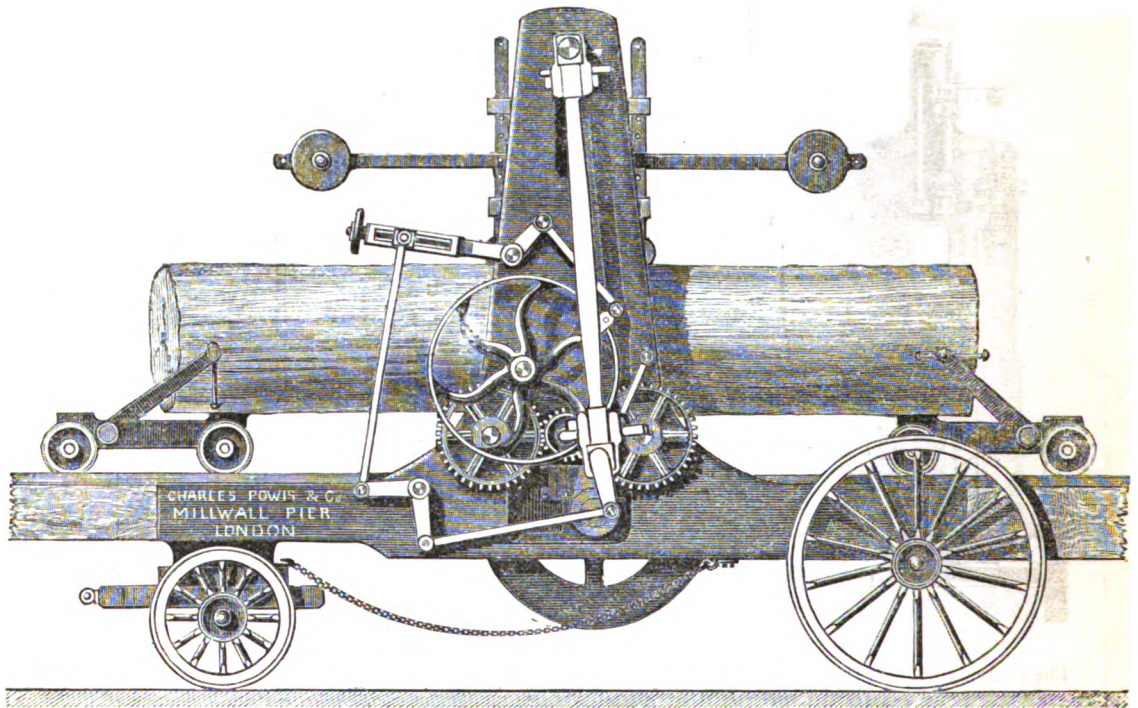
A graduated scale of inches is cut into the slide upon which the cutter block works, by which the man working the Machine can at once set it to cut any required thickness, without having to measure with his rule. The following sizes are made:

Sizes.	Width.	Depth.	Length.	Driving Pulleys.	Speed.	Price.
No. 1	To Plane 12 inches wide	12 inches deep	10 feet long	12 inches diameter	600 revolutions	£ 150 0 0
2	" 16 "	14 "	10 "	14 "	550 "	190 0 0
3	" 21 "	18 "	12 "	16 "	550 "	250 0 0

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ENGINEERS, MILLWALL PIER, LONDON, E. CITY OFFICES: 60, GRACECHURCH STREET, E.C.

PORTABLE TIMBER AND LOG FRAMES ON WHEELS.

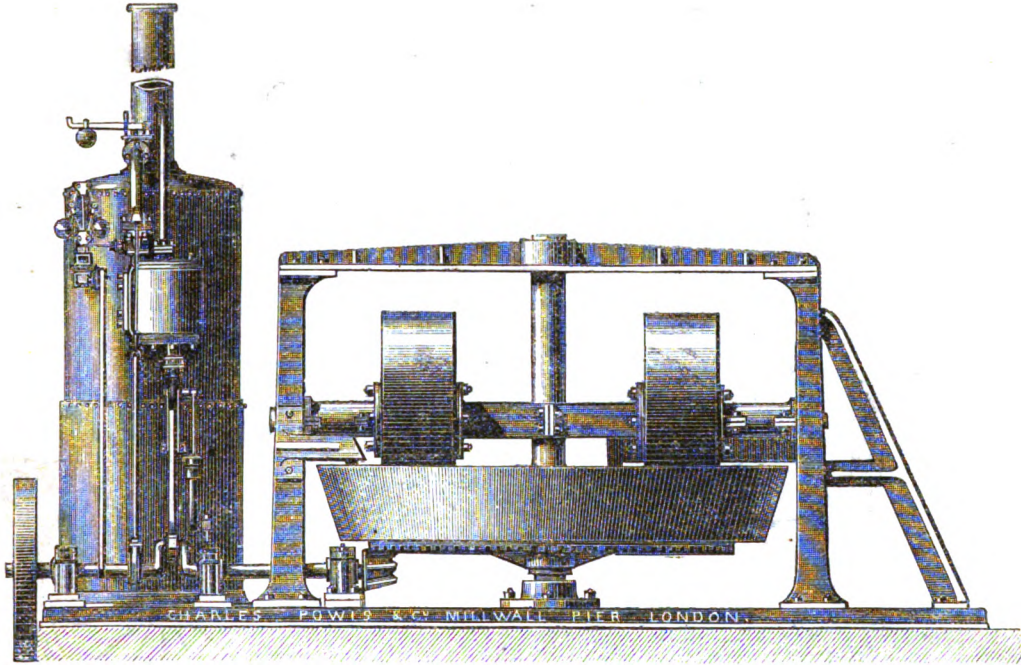


This Frame, being on Wheels, is perfectly portable, and, like a Portable Engine, may be moved from place to place entire, and started to work without the delay and cost of taking to pieces, re-erecting, or building any foundations whatever. All that is necessary, when it is drawn to the required position, is to remove the earth from beneath the wheels until the bed plate is level with the ground. The longitudinals carrying the Bogie rails are laid, and a belt put on the driving wheel from a Portable Engine or other motive power. It is then ready for work, and when that portion of the forest is cleared, it can as readily, and with as little expense, be moved to a fresh position. The Frame itself is constructed precisely as our ordinary Timber Frames; it is mounted on a strong cast-iron bed plate, carried by four strong wheels with shafts and a locking carriage in front; it has two fly-wheels, one on each side; they are both turned, and serve as driving pulleys, so that the frame may be driven from either side as required. The whole of its parts are of ample strength, and complete in every respect. A deal-cutting arrangement is also supplied when required.

CHARLES POWIS AND CO.,
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MILLWALL PIER, LONDON, E. CITY OFFICES: 60, GRACECHURCH STREET, E.C.

IMPROVED SELF-CONTAINED MORTAR MILL AND ENGINE, AS DESIGNED FOR HER MAJESTY'S GOVERNMENT.



The above Illustration represents our Improved Mortar Mill and Engine combined. They are quite portable, and are especially advantageous in situations where space is an object, and where the ordinary form of Mortar Mill driven by a Portable Engine could not be adopted.

The smaller sizes are mounted on wheels, and can consequently be readily moved from one position to another, as the work progresses. The Engine, Boiler, and Mill are fitted on a strong cast-iron foundation plate, all complete and ready for immediate work; all that is necessary being to fill the Boiler and light the fire. The Engine can also be arranged to do the necessary Pumping, and to work a Barrow-hoist for raising Bricks, Mortar, Timber, &c.

No.	Diameter of Pan.	Approximate Weight of Mortar Mill.	Price of Mortar Mill.	Power of Engine.	Price of Engine.	Price of Engine and Mill as illustrated.
	ft. in.	tons.	£ s. d.		£ s. d.	£ s. d.
1	6 0	5	80 0 0	4 horse	145 0 0	225 0 0
2	7 6	5½	100 0 0	6 „	168 0 0	268 0 0
3	9 0	9	130 0 0	8 „	190 0 0	320 0 0

The Mortar Mills, and also Vertical Engines and Boilers, are supplied separately at the above Prices.

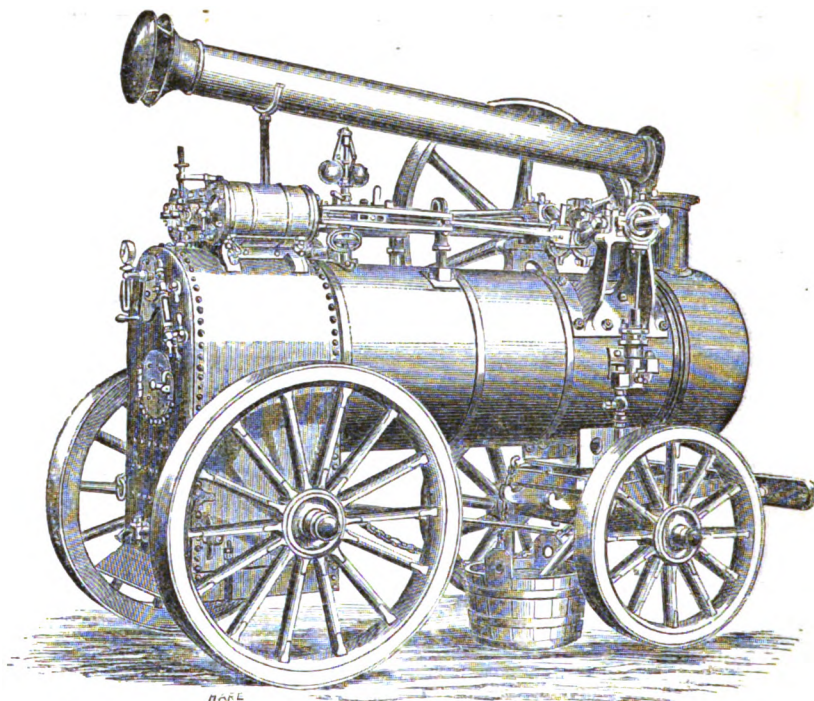
Other Sizes made, and Prices furnished on application.

CHARLES POWIS AND CO.,

ENGINEERS,

MILLWALL PIER, LONDON, E. CITY OFFICES: 60, GRACECHURCH STREET, E.C.

IMPROVED PORTABLE STEAM ENGINE.



The above Illustration represents our Improved Portable Steam Engine, which is constructed on the most approved principles, and made throughout of the best materials and workmanship; it is of great strength and durability, due regard being paid to portability.

Each Engine is supplied with Glass Water Gauge, Gauge Cocks, Blow-off Cock, Tallow Cock to Cylinder, Steam Indicator and Whistle, and provided with Waterproof Cover, Wrenches, Firing Tools, and all requisites.

Engines for exportation to countries where coal is scarce are made with enlarged fire boxes for burning wood, &c., and the chimney is provided with improved copper wire spark-catcher to prevent accident from fire.

Link-motion reversing gear can be attached to this Engine, for which an extra charge is made.

NOTE.—These Engines are also made with Steam-Jacketed Cylinders, Feed-Water Heater, and Patent Variable Expansion Eccentrics, whereby great economy in fuel is effected. The sizes and prices being as under :

Prices of Single-Cylinder Portable Engines, with Fittings Complete.			Prices of Double-Cylinder Portable Engines, with Fittings Complete.		
4 horse-power ..	£ 180	8 horse-power ..	£ 255	10 horse-power ..	£ 320
5 " " ..	200	9 " " ..	275	12 " " ..	370
6 " " ..	220	10 " " ..	295	14 " " ..	415
7 " " ..	235	12 " " ..	335	16 " " ..	455
				18 horse-power ..	£ 510
				20 " " ..	545
				25 " " ..	660
				30 " " ..	780

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